REMARKS

In the Official Action mailed April 22, 2005, the Examiner objected to the specification, rejected claim 9 under 35 U.S.C. § 112, and rejected claims 1-29 under 35 U.S.C. §§ 102 and 103. Applicants note that claims 30 and 31 do not appear to be addressed by a specific rejection in the present Official Action. As such, Applicants can not properly address the Examiner's position for this claimed subject. Accordingly, if these claims are not indicated to be allowable, Applicants respectfully request that the Examiner provide a non-final Official Action to allow the Applicants to address the subject matter of these claims.

In this response, Applicants have amended the specification and claims. In addition, Applicants have added new claims 32-34. Upon entry of the amendments and new claims, claims 1-34 will be pending in the application. In addition, Applicants have summarized a telephonic interview, which was conducted with the undersigned and the Examiner on July 12, 2005. In the telephonic interview, Applicants discussed the prior art rejections and the deficiencies of the prior art, which are discussed further below. Applicants appreciate the Examiner's consultation regarding the prior art and the rejections. Accordingly, reconsideration of the rejections and allowance of the pending claims is respectfully requested.

Objections to the Specification

In the Official Action, the Examiner indicated that the specification should include various trademarks. Accordingly, in the present response, Applicants have amended the text in a paragraph on page 9, lines 22-28 and a paragraph beginning on page 25, line 29 and ending on page 26, line 4. These amendments merely replace the phase "Simula, Eiffel," with the phrase "Simula©, Eiffel™," as suggested by the Examiner. As these amendments do not add any new matter, Applicants respectfully request entry of these amendments.

Rejections under 35 U.S.C. § 112

The Examiner rejected claim 9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended claim 9 to correct the

antecedent basis of the term "logic flow chart." As this amendment merely corrects a typographical error in the original claim, the amendment does not add any new matter. In addition, Applicants have amended claim 11 to correct a typographical error in the preamble of this claim by replacing the term "method" with the phrase "computer system." This amendment does not limit the claim, but modifies the text to be consistent with the independent claim that this claim depends from. Again, as this amendment merely corrects a typographical error in the original claim, the amendment does not add any new matter. Thus, Applicants respectfully request entry of the amendments.

Rejections under 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 12, 14-20, 23 and 28-29 under U.S.C. § 102 (a) as being anticipated by U.S. Patent No. 6,063,128 to Bentley, which is herein referred to as "Bentley." Applicants respectfully assert that the Bentley reference does not disclose the claimed subject matter.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

In the rejection of independent claims 1 and 20, the Examiner relied upon the Bentley reference to disclose all of the recited features. However, Applicants respectfully note that the Bentley reference fails to disclose each of the recited features of independent claims 1 and 20 for at least two reasons. First, Bentley fails to disclose "converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user," as recited in claim 1, and "initiating simulation of the physical system by the

reservoir simulator user causing initiation of the following steps without intervention of the reservoir simulator user" ..._"automatically converting the logic into corresponding object-oriented code," as recited in claim 20. Secondly, Bentley fails to disclose "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, and "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system," as recited in claim 20. Hence, the Bentley reference cannot anticipate independent claims 1 and 20, much less dependent claims 2, 12, 14-19, 23 and 28-29.

Regarding the first point, Bentley relates to a system for computerized modeling. *See* Bentley col.1, lines 11-16. Applicants note that the Bentley reference describes a computerized modeling system that includes object oriented schema implementation programming language, a compiler, a linker and a run-time system. *See id.* at col. 4, lines 42-46. The programs are written in C and C++, and then compiled by the compiler to generate object files. *See id.* at col. 4, lines 46-52. The object files, which appear to be compiled and stored separate from the user session, are accessed by a user of the computerized modeling system when a session is initiated. *See id.* at col. 5, lines 46-52. That is, the computerized modeling system of Bentley utilizes previously compiled objects, it cannot disclose "converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user," as recited in claim 1, and "initiating simulation of the physical system by the reservoir simulator user causing initiation of the following steps without intervention of the reservoir simulator user" ..._"automatically converting the logic into corresponding object-oriented code," as recited in claim 20. Thus, Bentley fails to disclose the claimed subject matter of claims 1 and 20.

Regarding the second point, Bentley describes a linker that combines object files into an executable program. *See id.* at col. 4, lines 42-46. As noted above, the object files are generated prior to the use of the computerized modeling system. Indeed, Bentley describes that schema programs model information relevant to a predetermined domain. *See id.* at col.

4, line 66 to col. 5, line 10. As a result, the linker does not integrate object files with the main simulation system based on the initiation of the session by the user. Accordingly, the computerized modeling system of Bentley does not disclose "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, and "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system," as recited in claim 20. Thus, Bentley again fails to disclose the claimed subject matter of claims 1 and 20.

Accordingly, in view of the remarks set forth above, Applicants respectfully submit that the Bentley reference cannot support a *prima facie* case of anticipation. Therefore, Applicants respectfully request the Examiner withdraw the rejection and allow the pending claims 1, 2 12, 14-20, 23 and 28-29.

First Rejection under 35 U.S.C. § 103

The Examiner rejected claims 3-11, 13 and 24-27 under 35 U.S.C. § 103 (a) as being unpatentable over Bentley and U.S. Patent No. 6,173,438 to Kodosky et al., which is herein referred to as "Kodosky," and official notice. Applicants respectfully assert that the Bentley and Kodosky references along with official notice do not disclose or teach the claimed subject matter.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been

obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

To begin, claims 3-11, 13 and 24-27 depend from either independent claim 1 or 20, and are believed to be patentable based on this dependence. In the rejection of claims 3-11, 13 and 24-27, the Examiner asserted that the Bentley teaches all of the recited features except a logic flow chart interface, a text-based logic code interface, and constructing a logic flow chart. In an attempt to cure this deficiency, the Examiner asserted that these features are shown by the Kodosky reference and official notice. However, the cited references and official notice fail to cure the deficiencies of Bentley. Furthermore, the Examiner has improperly relied upon facts outside of the record that the Examiner apparently believes are capable of disclosing certain aspects of the claimed subject matter. Hence, the cited reference and official notice cannot render the claimed subject matter obvious.

To begin, Kodosky describes a computer-based virtual instrumentation system with graphical programs created using the computer system can be downloaded to an embedded system for execution in real-time. *See* Kodosky, col. 3, lines 60-67. The user of the Kodosky system creates the program and compiles the program, which includes selecting the execution engine. *See id.* at col. 5, lines 5-44. Further, the Kodosky system includes improved debugging support for the user to debug the graphical program that is executing on the embedded system. *See id.* at col. 5, lines 45-56. Clearly, the user of Kodosky is involved in

the conversion of the graphical program in the Kodosky reference. As such, Kodosky does not disclose "converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user," as recited in claim 1, and "initiating simulation of the physical system by the reservoir simulator user causing initiation of the following steps without intervention of the reservoir simulator user" ..._"automatically converting the logic into corresponding object-oriented code," as recited in claim 20.

In addition, Kodosky describes that the system includes a mechanism for embedded LabVIEW to load DLLs and to invoke or call functions in DLLs. *See id.* at col. 22, lines 40-46. However, because the DLLs generated by desktop development tools are not intended to be utilized in real-time operating systems, some patching or modification is necessary to make the DLLs compatible with the embedded system. *See id.* at col. 22, lines 46-54. That is, the user of the Kodosky system is involved in the integration of the DLLs into the embedded system. As such, Kodosky does not disclose "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, and "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system," as recited in claim 20. Accordingly, Kodosky fails to cure the deficiencies of Bentley.

Similarly, the official notice does not cure the deficiencies of Bentley and Kodosky. In the rejection, the Examiner asserted that "a graphical interface including a text-based interface for providing logic code is extremely well known." This unsupported assertion does not disclose or suggest "converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user," as recited in claim 1, and "initiating simulation of the physical system by the reservoir simulator user causing initiation of the following steps without intervention of the reservoir simulator user" ... "automatically converting the logic into corresponding object-oriented code," as recited in claim 20. Further, the unsupported assertion does not disclose or suggest "integrating the object oriented code with the main simulation system which comprises a simulation data

model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, and "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system," as recited in claim 20. Accordingly, the official notice fails to cure the deficiencies of Bentley and Kodosky.

With regard to the official notice, the Examiner has taken official notice of facts outside of the record that the Examiner apparently believes are capable of demonstration as being "well-known" in the art. Specifically, as noted above, the Examiner asserted "a graphical interface including a text-based interface for providing logic code" is "well known" in the art. In the rejection, the Examiner argued that such a system is an integrated development environment. However, in accordance with M.P.E.P. § 2144.03, Applicants seasonably traverse and challenge the Examiner's apparent use of official notice. Specifically, Applicants respectfully request objective evidence, such as an additional reference, in support of the Examiner's position. If the Examiner finds an additional reference and applies it against the present claims, Applicants further request that it be cited in a non-Final rejection and that the Examiner specifically identify the portion of the newly cited reference that discloses the allegedly "well known" elements of the recited claims, as discussed above, or withdraw the rejection.

Accordingly, in view of the remarks set forth above, Applicants respectfully submit that the Bentley and Kodosky references along with official notice cannot support a *prima facie* case of obviousness. Therefore, Applicants respectfully request the Examiner's withdraw the rejection and allow the pending claims 3-11, 13 and 24-27.

Second Rejection under 35 U.S.C. § 103

The Examiner rejected claims 20-22 under 35 U.S.C. § 103 (a) as being unpatentable over Bentley and U.S. Patent No. 3,971,926 to Gau et al., which is herein referred to as "Gau." Applicants respectfully assert that the Bentley and Gau references do not disclose or teach the claimed subject matter.

Claims 21-22 depend from independent claim 20, and are believed to be patentable based on this dependence. In the rejection, the Examiner admitted that the Bentley reference does not disclose modeling hydrocarbon-bearing subterranean formation of fluid-containing facilities associated with the production of hydrocarbons from the hydrocarbon-bearing subterranean formation. In an attempt to cure this deficiency, the Examiner relied on the Gau reference to cure the deficiencies of the Bentley reference, which are discussed above. However, the Gau reference discloses a physical system that is utilized to train personnel in oil field operations. *See* Gau, col. 1, lines 7-11. Gau describes a system that is a combination of physical components with circuitry utilized to train students in how to operate and maintain a well. *See id.* at col. 1, line 63 to col. 2, line 26. Clearly, Gau simply suggests an environment with physical components that enable users to interact with and adjust physical components to learn how to operate a well. Thus, because Gau does not disclose the recited features of independent claim 20, the Gau reference fails to cure the deficiencies of Bentley.

Further, the subject matter recited in claims 21 and 22 is not disclosed or suggested by Bentley and Gau, alone or in combination. In the rejection, the Examiner admits that Bentley does not disclose modeling hydrocarbon-bearing subterranean formation of fluid-containing facilities associated with the production of hydrocarbons from the hydrocarbon-bearing subterranean formation. As such, The Examiner relied upon Gau to disclose this subject matter. However, as noted above, Gau describes a system having physical components to simulate well operations. It does not disclose a *computer system for simulating a physical system* that comprises "a hydrocarbon-bearing subterranean formation," as recited in claim 21, and " fluid-containing facilities associated with production of hydrocarbons from the hydrocarbon-bearing subterranean formation," as recited in claim 22. Accordingly, because Gau does not disclose the recited features of claims 21 and 22, the Gau and Bentley references, alone or in combination, fail to disclose the subject matter of clams 21 and 22.

In addition, Applicants note that a *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). In the Gau reference, the system includes physical components utilized to train students how to operate and maintain a well. *See id.* at col. 1, line 63 to col. 2, line 26. Indeed, in the background, Gau even describes that computer programs will not create real time displays of operation simulations. *See id.* at col. 1, lines 56-62. As such, Gau teaches utilizing physical components to simulate an operational well, and teaches away from a computer-based simulation of a hydrocarbon-bearing subterranean formation and fluid-containing facilities. Accordingly, Gau teaches away from the proposed combination.

Therefore, claims 21-22 are patentable by virtue of their dependence from independent claim 20, as well as the subject matter recited in each of the claims. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection and allowance of claims 21-22.

New Claims 32-34

New claims 32-34 have been added in this response. Of these claims, only claim 32 is independent. Claim 32 sets forth an apparatus in a manner similar to the recitations of claim 1. However, the recitations of claims 32-34 have been crafted to focus more on other aspects described in the specification. *See e.g.* Application; Figs. 1-7; page 7, line 20 to page 26, line 27. Accordingly, as claims 32-34 are clearly supported by the specification, these claims are believed to be clearly patentable at least for the reasons set forth above with respect to claims 1-29.

Fees for New Claims

Applicants hereby provide a general authorization to charge the appropriate fees for new claims 32-34 to Deposit Account No. 05-1328. As Applicants are adding one independent claim and two dependent claims, the required fee is believed to be $150.00 ($150 for three dependent claims). If this amount is in error, the Commissioner is authorized to charge the appropriate fees to the Deposit Account noted above.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: July 22, 2005

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Certification under 37 CFR §§ 1.8(a) and 1.10

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